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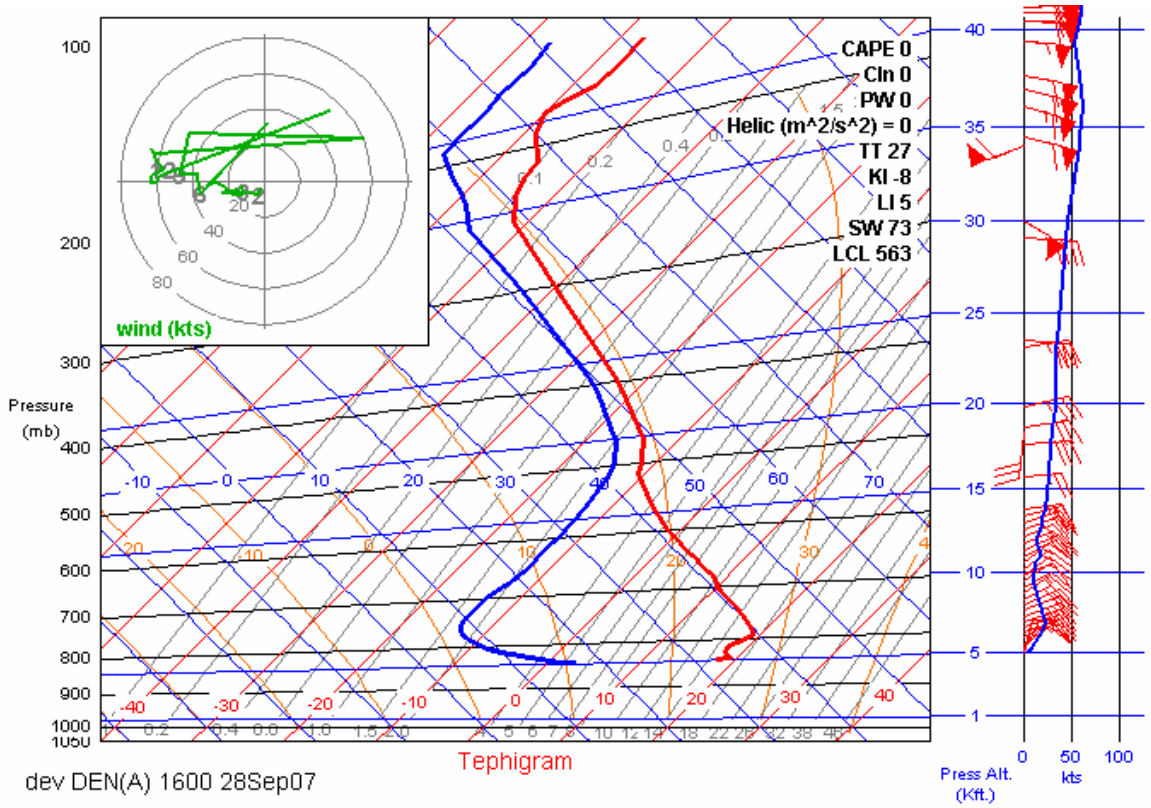
Photo taken 9/8/07
ME # 916-375

Assignment #2: Photography of Clouds

The purpose of this assignment was to photograph a naturally occurring fluid flow as seen in the form of clouds. My intention was to try to get an aesthetically pleasing photograph that also showed some type of cumulus cloud. I specifically wanted a cumulus cloud because of their fluffy appearance and texture. I took more than 20 photographs of many different types of cumulus clouds at many different times of the day. I finally happened to be riding in a car and looked over my shoulder to see a cumulus cloud with the setting sun directly behind it. I was only able to get 1 photo of the cloud before the sun was out from behind the cloud.

After analyzing my photograph I have concluded that the clouds are of the type Cumulus Fractus. Cumulus Fractus clouds are defined as cumulus clouds that have been broken up as a result of strong winds. After taking the picture I found the atmospheric sounding data shown in the SkewT plot below:



SkewT plot obtained from the NOAA website

The website I was using had a java applet that let me get detailed information form the plot. I estimated the stability of the atmosphere based on the temperature date. I found that the atmosphere is relatively stable up to around 6600 ft, and then is unstable form 6600 ft to 18000 ft. There is then a stable section from 18000 ft to 25000 ft. The atmosphere is unstable from 25000 ft to 35000 ft, and stable from 35000 ft to 45000 ft. Based on the dew point line (left) and the temperature line (right) I was able to determine at what altitude the cloud in the photograph was located. The dew point and temperature lines com in closest contact between 20000 and 30000 ft, representing the range of altitudes in which clouds are most likely located. Using the Java applet I was able to determine that the two lines are closest at around 23000 ft, so I will conclude that my cloud is most likely somewhere near this altitude.

Also on the SkewT plot shown in the above picture is the wind speed indicator panel shown on the right. This shows wind speeds at many different altitudes and gives the direction they are coming from. Using this data I have found that there are winds ranging from 5 to 25 knots coming from the west at the altitude of 5000 to 15000 ft. Above 15000 ft wind speeds increased ranging from 30 to 60 knots coming from the west. There is some sheer in the atmosphere around 340000 ft where the wind is blowing out of the east at nearly 40 knots. This wind between two levels of wind in the opposite direction is what creates a shearing effect. The wind at 23000 ft is approximately 40 knots which supports my conclusion that my cloud is a cumulus fractus.

While taking this picture the only lighting that was used was the natural light provided by the sun. Any additional light would have made little difference, and if anything would have made it worse. To take the picture I used a digital Canon PowerShot S410. The picture has a pixel size of 1600 wide X 1200 high. The lens focal length was set at 22mm. I took the picture with an aperture of F/13, and a shutter speed of 1/636 sec. The ISO setting was set to automatic meaning the camera chose the setting based on the current conditions. This setting was not recorded to the image file. I decided not to use Photoshop to alter the image in any way. I like the way my photo looks and didn't want to lose any of the unique lighting by altering it.

This image is a great example of art that exists in nature. My favorite aspect of my image is the position of the cloud with respect to the sun. It allows for a unique effect

on the clouds thinner areas are lighter, and the denser/thicker areas are darker. I also like the mountain backdrop that accents the clouds. The only aspect I wish I could have changed was the overall field of view. If I had a camera with the capabilities I would have like to zoom in a little more so as to make the main cloud more of a center piece in the image. This is an excellent image of a cumulus fractus cloud. The skewt plot shows the existence of high winds that can create this type of cloud.

Bibliography

1. 6 Oct. 2007 <http://www-frd.fsl.noaa.gov/soundings/java/plot_soundings.cgi?airport=DEN&startSecs=1167321600&endSecs=1167343200&data_source=PROF>.